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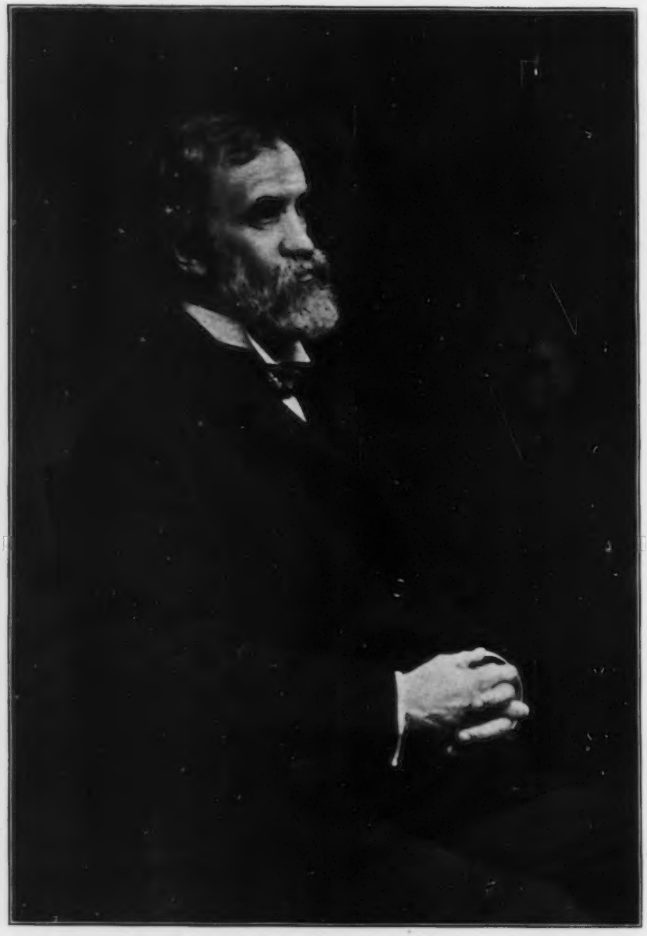

PROFESSOR ALPHEUS SPRING PACKARD, M.D., PH.D.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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Alpheus Spring Packard, M.D., Ph.D.

(Plate VI.)

Prof. Alpheus Spring Packard, M.D., Ph.D., died on February 14, 1905. He was born in Brunswick, Maine, in 1839, and was graduated from Bowdoin College in 1861. He occupied many important scientific positions, being one of the founders and for twenty years editor-in-chief of the American Naturalist. In 1865 he became librarian and custodian of the Boston Society of Natural History, was curator of the Essex Institute and in 1867 became curator and afterward director of the Peabody Academy of Sciences. From 1877 to 1882 he was a member of the United States Entomological Commission. At one time he was State Entomologist of Massachusetts. He was a corresponding or honorary member of a number of European Scientific Societies and was elected a correspondent of the American Entomological Society in 1861. He occupied the chair of Zoology and Geology at Brown University from 1878 to his death. Dr. Packard was a prolific writer and was known to all entomologists through the work "Guide to the Study of In-

sects." He filled an important place in American Entomology and his work was of great value as may be known from the following list of his more important contributions: A Text Book of Entomology, 1898; Cave Fauna of North America; Guide to the Study of Insects, 1869; Insects Injurious to Forest and Shade Trees; Monograph of the Geometrid Moths, 1876; Monograph of the Bombycine Moths, 1895; the Humble-bees of New England and their Parasites, 1864. He was the author of more than sixty important papers on the subject of insects but did not confine his work solely to this branch of zoology. Dr. Packard may be said to have belonged to the second generation of distinguished American entomologists which includes LeConte, Riley, Horn, Scudder and Cresson. We give an excellent likeness of Prof. Packard from a photograph lately presented by him to the American Entomological Society.

The Blattidae of Montreal.

By Charles Stevenson, Montreal, Que.

The bringing to me of a beautiful green cockroach by a friend on the 9th April, 1904, aroused my interest in this group, so I tried to find how many species could be found in Montreal. The following list is the result of the observations made during the last season:

1. *Blattella germanica* Linn., the "croton bug," very common.
2. *Nyctibora sericea* Burm., imported with bananas.
3. " ? one immature specimen introduced with bananas.
4. *Blatta orientalis* Linn., the "oriental roach," common.
5. *Periplaneta americana* Linn., the "American roach," rare.
6. " *australasiæ* Fab., rare.
7. *Panchlora viridis* Burm., rare, evidently imported with tropical fruits. A specimen was captured in Winnipeg, Man., which was traced to a shipment of goods from Montreal, and a specimen was given me that was caught in the city of Quebec.

So far I have been unable to find a native field species and my fellow entomologists do not remember seeing any in their grubbing expeditions.

Notes from a Diary Made During a Collecting Trip to the Rocky Mountains of Colorado and Utah.

By Philip Laurent.

In company with Dr. Henry Skinner I left Philadelphia on Sunday morning, June 25, 1899. Our train pulled out of Broad Street Station at 8.50. Our first stopping place was Chicago, which we reached about 10 o'clock Monday morning. Here we were joined by the third member of our party, Prof. A. J. Snyder. After twelve hours spent in Chicago, during which time we had the pleasure of meeting Mr. Healy and Mr. Longley, both enthusiastic entomologists, we again boarded the train and were once more on our way to the West. Denver was reached about ten o'clock Wednesday morning. The first glimpse of the snow-capped peaks of the Rocky Mountains was to be had from our train about two hours before reaching Denver. The two or three spare hours that we had in Denver were spent in looking around the city, and in a hasty glance at the fine collection of Lepidoptera belonging to Mr. J. T. Mason. Denver is a very clean and pretty city, and we would have liked to have lingered here a day or two, but we were anxious to reach our goal or collecting grounds, and so at or about one o'clock in the afternoon we again boarded the train which two hours later landed us at Colorado Springs. However, we did not stay at the Springs, but entering a trolley car a short ride of twenty minutes landed us at Manitou, at the base of Pike's Peak. At last, after traveling for three and a half days we were able to commence our entomological work. We had no trouble in securing accommodations at Manitou, for the town for the most part, is composed of boarding houses and small hotels. Of all the places that we visited while on our Western trip none impressed me so favorably as Manitou, for its attractions are many and varied. There are numerous walks and drives, and the medicinal quality of its soda and iron springs is known far and wide; while the ride on the Cog Wheel R. R. to the top of Pike's Peak is one that he who has taken it will never forget. On the 29th we made the trip to the top of the Peak, but found but little collecting, as the crest of the Peak,

for several hundred feet down its sides, consists of nothing but rocks and large boulders; while the crevices in many cases are packed with snow. At the time of our arrival at the top of the Peak—which was about 11.30 in the morning—the thermometer registered 52 degrees, while at Manitou, some 8,000 feet below us, it was high in the eighties. On our way down from the "Peak" we stopped off at the "Half Way House" and spent several hours collecting in Dark Canon, the entrance to which is directly back of the house.

Having been so well pleased with our collecting in Dark Canon yesterday, to-day (Friday, June 30th) we concluded to go up again. We started about 7 o'clock, collecting as we slowly went along, and after three hours of very hard work at last reached our destination. The "Half Way House" is about three thousand feet above Manitou, and the ascent is about 1,000 feet to the mile, so that the task of walking up is no child's play, particularly to one who is not accustomed to this kind of exercise. However, it is nothing unusual for parties to walk the entire distance to the top of the Peak in one day, and had we remained longer at Manitou I have no doubt that we also would have accomplished the feat.

This morning (Saturday, July 1st) we packed up our "duds," and bidding farewell to Manitou and Pike's Peak, we boarded a trolley car and were soon over at the station at Colorado Springs. Our train left at 10.55, and soon we were dashing along on our way to Salt Lake City. The ride through the Royal Gorge and over the Divide was one that I shall never forget, but I shall not attempt to describe it, as words would fail me and I would consume too much of your valuable time; besides, I have no photographs with which to back up my assertions.

On Sunday July 2nd, shortly after noon, our train arrived at Salt Lake City, just two hours behind time. After securing accomodations and looking after our baggage, we found it was too late to do any more daylight collecting that day. The next day found us up bright and early and off to Fort Douglass, which is situated a short distance from the mouth of Red Butte Canon. The collecting in the fields around the fort was

very good, particularly for Lepidoptera, which were attracted by the flowers of the alfalfa, a plant which here in the West takes the place of our red-clover in the East. Up the Red Butte Canon we also found very good collecting, not only for Lepidoptera but also in some of the other orders of insects.

Tuesday, July 4th, found us in the City Creek Canon, and although we started to collect from the very mouth of the canon, yet it was not until we had traveled up the canon for a distance of about three miles that we found good collecting; in fact, it seemed as though insect life increased as we got farther and farther up the canon. It was here in City Creek Canon that we found *Papilio daunus*, *P. rutulus*, and *P. eurymedon* so very common, that at last we paid no attention to them, unless it was to "scoop" in a *Papilio daunus* that happened to come our way.

Wednesday, July 5th, again found us up City Creek Canon, as we could not resist the temptation to pay another visit to this interesting collecting ground. This might be called "Rattle-snake Day" as the Professor and the Doctor captured the only rattler that I saw during the entire trip, though the Professor saw two large ones in the same place shortly after I left Utah.

Thursday morning, July 6th, found all three of us a little foot-sore, so we concluded to hire a team to take us up the canon to a point about seven miles above the entrance, known as the "Forks," and then work our way down. We secured a team, but not such a one as you would expect the President of the United States to take when going to a reception. The seats consisted of boards with the splintery side up, and we had traveled but a few miles before we were made painfully aware of the fact. To sum it up in a few words, our rig resembled a cross between a buck-board and a lumber-wagon. However, we at last reached our destination, and as it was our last day to collect in this vicinity, and wishing to make the best of it, we at once started in, working our way down the canon, collecting as we slowly went along.

Friday, July 7th, we were up at the break of day, as we had made arrangements with a party the night before to convey us

to Silver Lake, at the head of the Big Cottonwood Canon. We waited, and waited patiently for our team to appear, but when at last the morning hours had passed by and no sign of man or team, we concluded that there were liars in Salt Lake City almost as bad as some that we have in Philadelphia. That night we hunted up another party, who promised to be on hand the next morning to convey us to our longed-for collecting grounds up in the Wasatch Mountains. True to his word, early the next morning, our man with his team put in an appearance, and soon we were on our way to the head of the Big Cottonwood Canon.

The ride up the canon is a very fine one, the beauty and grandeur of the scenery increasing as we travel onward and upward. Late in the afternoon we arrived at Silver Lake, and after the rough ride of some thirty-one miles we were naturally tired, so after preparing our supper, unpacking our bags and boxes, we turned in for the night.

The morning of the 10th found all three of us up shortly after daybreak, and down by the lake trying to catch a mess of fish for breakfast, but after fishing for an hour with only three small fingerlings to show as the result of our efforts, we concluded that ham and eggs were good enough for breakfast. The inner man having been satisfied, we gathered up our collecting paraphernalia and were soon on our way to the top of one of the numerous peaks that surrounded our camp. The greater part of the day was cloudy, but nevertheless we managed to secure a number of desirable specimens, of not only butterflies but also beetles and other insects.

Thusday, July 11th, was moving day for the "bug hunters," as the arrival of our host's family made it necessary for us to vacate the shack, and so to speak, "take to the woods." Two comfortable tents on the edge of the woods, however, afforded us all the protection that was necessary. Moving over, and our "duffle" arranged, we were off again to collect. The Professor spent the day on one of the near-by peaks, while the Doctor and myself followed the road down the canon. In the evening on comparing our captures, we found, as we had expected, that the catch made by the Doctor and myself dif-

fered entirely from that made by the Professor some seven hundred feet above us.

Wednesday, July 12th, all three of us visited the peak where the Professor had collected the day before, but towards noon I left the Doctor and the Professor and descended to the shore of Silver Lake, where I spent the afternoon in search of such Coleoptera as are found under stones, logs, rubbish, etc. It was the first time since our arrival in the West that I found Coleoptera in paying numbers, and before darkness put a stop to my work I had collected some 200 desirable specimens; as might be supposed, mostly Carabidæ.

Thursday, July 13th, again found us on our way up the mountain side, but on towards eleven o'clock the distant thunder coupled with the black clouds over Mt. Millicent warned us that a thunderstorm was approaching, so leaving the Professor to watch for any buttterflies that might be foolish enough to venture out during a thunderstorm, the Doctor and myself returned to camp. At one o'clock, as the weather was still threatening, the Doctor and I concluded to climb up to Twin Lakes and try for a mess of trout. The climb, or steep walk as it might be called, was not a hard or long one, and soon we were standing at the outlet to the lakes looking down at trout enough to feed a dozen hungry men, but the rascals would take neither fly nor bait. It is hardly necessary to state that, as usual, our breakfast the next morning consisted of the omnipresent ham and eggs.

The next day, Friday, July 14th, was the first real bright day that we had had since our arrival at the head of the Big Cottonwood, and the result was that we took more specimens than in any previous two days put together. But, nevertheless, we were not to occupy a dry tent that night, for about seven o'clock in the evening our daily thunderstorm—to which we had now become accustomed—put in its appearance, and for about an hour the rain came down in torrents.

The morning of the 15th dawned bright and clear, but everything was wet from the rain of the night before, so that it was almost 10 o'clock before the vegetation was dry enough to permit us to do any successful work in the way of collecting.

July the 16th, and the last day for the Doctor and myself to do any more collecting at Silver Lake, had every appearance of being a rainy day. It was certainly not a day for butterflies, so leaving the Professor and the Doctor in camp waiting for the sun to appear so that they might resume their butterfly collecting, I started off in search of Coleoptera, with the result that when night came I found I had in the neighborhood of 250 specimens for the day's work.

The morning of the 17th found the Doctor and myself on our way back to Salt Lake City, leaving the Professor behind to continue his entomological labors. We arrived at Salt Lake City about four o'clock the same afternoon, and as neither of us had enjoyed such a thing as a bath or even a good wash for eight days, we concluded to stay over in Salt Lake City until the next day and clean up. A shave, hair cut, and a bath, and once more we commenced to feel like civilized men. Our tickets and baggage looked after, and at 6.40 Tuesday evening we left for our homes in the East.

At 8 o'clock Thursday evening we arrived at Chicago. A trip out to Ferris Wheel Park and a ride on the Ferris wheel, and at 11.30 we were again on our way. However, had it not been for two pairs of very lively legs we never would have made that 11.30 train, for the prevaricator of the truth who manipulates the Ferris wheel informed us that it would take about twenty minutes to make the trip in the wheel, instead of which it took us just exactly forty.

We arrived at Pittsburg the next evening about seven o'clock and after securing accommodations and making a few small purchases we retired for the night.

The next morning, Saturday, July 22d, we went in search of Dr. Holland and his collection of butterflies, but soon found out that the Doctor was out of town, and consequently did not see the Holland collection. As this was our only object in stopping off at Pittsburg, we were very much disappointed; for aside from smoke and soot, the Carnegie Institute and the Zoological Garden we saw but little else in Pittsburg to interest us.

Saturday evening at 8.30 again found us on the train, our

next stopping place to be Philadelphia, providing everything went well with us. We were not disappointed, and at seven o'clock Sunday morning, July 23rd, our train arrived at Broad Street Station. And thus ended a short but interesting collecting trip to the Rocky Mountains.

A Bibliography of Entomological Glossaries.

By Alec. Arsène Girault.

The list of glossaries following is given upon request, and comprises those consulted in the preparation of an entomological dictionary. This is to such a degree incomplete that its publication, even within three or four years, is doubtful, and hence, knowing the need now felt for works of this nature, the bibliography herewith given has been prepared.

The meagreness of the list readily shows under what difficulties the present-day entomologist is laboring in regard to the language of his science. Vocabularies are unknown, and the glossaries now existing are very incomplete and imperfect, the largest and best being but an imperfect compilation of those preceding. No attempt has as yet been made to define terms with that accuracy, nicety and invariability so essential in scientific language.

The Standard Dictionary (Funk and Wagnall's Company, N. Y.) is at present indispensable; the entomological terms have been defined by Dr. L. O. Howard. Its bulk is a great draw-back, but it is *the* authority on general entomological terms. A rather useful paper has been published in the Proceedings of the California Academy of Sciences, 3rd series, Zoology, I, pp. 115–143, on Scientific Names of Latin and Greek Derivation, by W. Miller. Other general zoological and physiological terms, not generally given in entomological glossaries, may be found in works on those subjects, including also works on evolution. A few of these are given in a supplementary list, but no attempt has been made to list anything like all of them.

The Bibliography of Entomological glossaries follows.

1826. Kirby, W. and Wm. Spence. Orismology, or explanation of terms. (Intro. to Entom., IV, pp. 257–354.)
Containing an explanation of 977 terms, with useful rules for their use. Apparently the oldest glossary; valuable.

1832. Burmeister, H. C. C. Orismology. Its Definition and Compass. (Manual of Entomology, pp. 5–113, pls.; also cf. pp. 624–632. Translation by W. E. Shuckard, London, 1836. Vol. I, Handbuch der Entomologie, Berlin, 1832.)
A most complete and important review of the subject to date; invaluable. Definitions of all of the terms then in use are given, with valuable criticisms, and also references to scattered papers containing the original definitions of many terms. These references are not included in this list, because of their nature.

In order to make Burmeister's references more full, and to add to this list, mention may be made of the following, though not strictly glossaries:

1767. Linnæus, C. Fundamenta Entomologiæ. Later translated by Wm. Curtis (1772.)

1772. Curtis, Wm. Fundamenta Entomologiæ; or an introduction to the knowledge of insects. London, 1772. A translation of Linnaeus.

1778. Fabricius, J. C. Philosophia entomologica sistens scientiæ fundamenta adjectis definitionibus, exemplis, observationibus, adumbrationibus. Hamburg, 1778.

1788. Vandelli, D. Diccionario dos termos technicos de Historia Naturel. Coimbro, 1788.

1788. Schmiedlein, G. B. Insectologische Terminologie oder Grundbegriff der Insectenlehre. Leipzig, 1788.

1790. Borkhausen, M. B. Versuch einer erklärung der Zoologischen Terminologie. Ein Handbuch Zum Gebrauch derer, welche die Zoologie studiren wollen. Frankfurt, 1790.

1795. Moeller, C. H. Lexicon Entomologicum oder Entomologisches Wörterbuch, in welchem alle diese Wissenschaft einschlagende Begriffe und die in den Linneischen und Fabrizischen Schriften vorkommenden Termologien übersetzt, erklärt, and mit Beispielen nach beiden Systemens erläutert werden. Erfurt, 1795.

1829. Anon. Description and History of some of the principal British Insects. Terminology. Mag. Nat. Hist., 1829, t. 1., pp. 421–424, fig.

1832. Helfer, J. W. Terminologie Entomologica. Dissert. inaug. Ticini Regii, 1832.

1859. Say, Thomas. Complete Writings on the Entomology of N. A. (New York, 1859. LeConte edition, 1, pp. 123–160.)
Defines about 775 descriptive terms; valuable.

1860. Mueller, Julius. Terminologia Entomologica. Brünn, 1860.

1867. Anon. Glossary. (Amer. Naturalist, 1, pp. 681-868.)
550 words used in natural science.

1878. Strecker, Herman. Synonym. Cat. of the Macrolepidoptera of N. A. (Reading, Pa., B. F. Owens. Pp. 35-45.)
An explanation of 450 Lepidopterous terms. Good.

1879. Brooklyn Entomological Society. Explanation of Terms used in Entomology. (Bull. Brook. Entom. Soc., June 1879. Repr., Brooklyn, New York, 1883. 38 pp.)
Contains 1450 definitions of descriptive terms, compiled from previous glossaries. The only working glossary extant, and although very much out of date, very valuable.
A revised edition is now in preparation.

1881. Ormerod, E. A. Manual of Injurious Insects. (London, Simpkin, Marshall & Co. Pp. 315-316.)
49 general terms.

1881. Thomas, C. Descriptive Catalogue of Larvæ. (10th Rep. State Ent. Ill., in Trans. Dept. Agr. Ill., 1881. Appendix, pp. 60-62).
15 terms used in describing larvæ.

1883. Packard, A. S. Guide to the Study of Insects. (8th edition, New York, Henry Holt & Co. Pp. 685-686.)
155 general terms.

1886. French, G. H. The Butterflies of the Eastern U. S. (Philadelphia, J. B. Lippincott & Co. Pp. 389-396.)
Good definitions of 240 Rhopalocerous terms.

1888. Fernald, C. H. The Orthoptera of New England. (Boston, Mass. Pp. 55-56.)
48 general Orthopterous terms.

1889. Packard, A. S. Entomology for Beginners. (New York, Henry Holt & Co., 1889. Pp. 337-354. 2nd edit., 1892.)
Good definitions of 482 terms.

1890. Ormerod, E. A. Manual of Injurious Insects. 2nd edit., London, 1890, Simpkin, Marshall, Hamilton, Kent & Co Pp. 397-380.
The same as edition 1.

1897. Lugger, O. The Orthoptera of Minnesota. (Bull. No. 55, Minn. Agr. Exp. Sta., pp. 366-375.)
Good simple definitions of 346 Orthopterous terms.

1901. Dickerson, M. C. Moths and Butterflies. (Boston, Mass., Ginn & Co. Pp. 333-335.)
49 general anatomical and physiological terms.

As a list supplementary to this, mention may be made of the following:

Packard, A. S. Zoölogy. Amer. Sci. Ser. (brief course,) New York, Henry Holt & Co., 1885. Pp. 317-322.

Holder, C. F., and J. B. Holder. Elements of Zoölogy. Appleton's Sci. Text-books, New York, D. Appleton & Co., 1884. Pp. 373–375.

Darwin's Origin of Species. 6th revised edition., London, 1889.

Bailey, L. H. The Survival of the Unlike. New York, The MacMillan Co., 1896.

Apgar, A. Glossary of Molluscan Terms. Jour. N. Jersey Nat. Hist. Soc., January, 1891. P. 155.

Jackson's Glossary of Botanical Terms. Philadelphia, Pa. Very complete.

Asa Gray's Botany, revised edition.

All of these contain glossaries, which have more or less indirect bearing on general entomology. Jackson's "A Glossary of Botanical Terms," especially, will prove useful. For definitions of terms not contained in glossaries, see Comstock and Kellogg, "Elements of Insect Anatomy"; Packard's, "A Text-book of Entomology"; Sharp's "Insects, Cambridge Natural History"; Comstock and Needham, "The Wings of Insects"; Comstock and Chujiro Kochi, "Anatomy of the Head of Insects"; Comstock's "Manual for the Study of Insects"; Lugger's "Minnesota Reports," and LeConte and Horn's "Classification of the Coleoptera." An enumeration of more would be useless. The monographs of the different families are very valuable, and all general works of any importance are essential.

On the North American Species of Oscinis.

By C. F. Adams, University of Chicago, Chicago, Ill.

In addition to the table to the species I give descriptions of four new forms which I found in the Hough collection. It is difficult to give all the species their proper place in the table, but after examining material in the Hough collection, in the collection of the University of Kansas, my own collection, and that of the British Museum, I feel that there are few inaccuracies in the following table. Other new species from the West Indies are not included, as their descriptions are to appear elsewhere.

TABLE TO THE SPECIES.

1. Mesonotum black 9
   Mesonotum yellow 2
2. Antennæ wholly yellow 3
   Antennæ not wholly yellow 6
3. Mesonotum vittate 4
   Mesonotum not vittate . . . . . **mitis** Will.
4. Eyes pilose 5
   Eyes bare . . . . . **nuda** n. sp.
5. Scutellum triangular . . . . . **triangularis** Will.
   Scutellum oval . . . . . **ovalis** n. sp.
6. Antennæ wholly black . . . . . **virgata** Coq.
   Antennæ not wholly black 7
7. Scutellum black . . . . . **dorsalis** Loew.
   Scutellum luteous or yellow 8
8. Mesonotum with four vittæ . . . . . **quadrilineata** Will.
   Mesonotum with three vittæ . . . . . **dorsata** Loew.
   Mesonotum not vittate . . . . . **minor** n. sp.
9. Legs wholly yellow 10
   Legs not wholly yellow 14
10. Abdomen wholly black 11
    Abdomen not wholly black 12
11. Third and fourth veins moderately divergent. . . . . **umbrosa** Loew.
    Third and fourth veins nearly parallel . . . . . **atriceps** Loew.
12. Base of dorsum of abdomen yellowish 13
    Base of dorsum of abdomen black . . . . . **apicalis** Will.
13. Face blackish . . . . . **pallipes** Loew.
    Face yellow . . . . . **collusor** Town.
14. Antennæ wholly yellow . . . . . **flaviceps** Loew.
    Antennæ not wholly yellow 15
15. Venter of abdomen yellow 16
    Venter of abdomen black 18
    Venter of abdomen variegated . . . . . **minor** n. sp.
16. Mesonotum bisulcate . . . . . **subvittata** Loew.
    Mesonotum trisulcate . . . . . **trisulcata** n. sp.
    Mesonotum without sulcæ 17
17. Sides of mesonotum and pleura reddish yellow . . . **pectoralis** Coq.
    Sides of mesonotum and pleura black . . . . . **obscura** Coq.
18. Mesonotum shining 19
    Mesonotum at least subopaque, more or less pollinose 22
19. Antennæ wholly black 20
    Antennæ not wholly black 21
20. Femora wholly yellow . . . . . **anonyma** Will.
    Femora not wholly yellow . . . . . **variabilis** Loew.
21. Legs, except middle femora in part, yellow . . . . **nudiuscula** Loew.
    Legs, except all femora in part, testaceous . . . . . **decipiens** Loew
    Legs, except all femora and front tibiæ in part, yellow . **concinna** Will.

22. Face whitish or yellowish 23
Face black 26
23. Mesonotum with four grey pollinose, posteriorly abbreviated, vittæ, **trigramma** Loew.
Mesonotum not so marked 24
24. Legs yellow, hind femora and hind tibiæ somewhat brownish **incipiens** Will.
Legs largely black or dark brown 25
25. Vertical triangle shining . . . . . **hirta** Loew.
Vertical triangle greyish pollinose . . . . . **fur** Will.
26. Tibiæ wholly yellow . . . . . **nana** Will.
Tibiæ not wholly yellow 27
27. Third and fourth veins divergent . . . . . **longipes** Loew.
Third and fourth veins parallel . . . . . **carbonaria** Loew.

Oscinis minor n. sp.

Head yellow. Vertical triangle reaching only half way to antennæ, containing a black ocellar dot; third antennal joint orbicular, its apex, with the arista, black. Mesonotum largely yellow, sometimes blackish posteriorly, and in one specimen, wholly black, thinly pollinose, and with a few black bristles laterally; pleura yellow, in the dark form with a blackish spot above middle coxæ; scutellum usually wholly, sometimes only apically, yellow, with a pair of small black bristles; halteres yellow. Abdomen black, hind margins of segments yellow; venter variegated. Legs yellow, hind tibiæ centrally, and tips of all tarsi, blackish. Wings hyaline, third section of costa two-thirds length of second, third and fourth veins nearly parallel.

Four specimens. Opelousas, La. March.

Oscinis nuda n. sp.

Head yellow; vertical triangle reaching half way to antennæ, containing a black ocellar dot, eyes bare. Mesonotum yellow, with four, broad, brown vittæ, and an additional narrow one above base of wing; lateral bristles black. Pleura yellow, with a small black spot above middle coxæ. Scutellum oval, yellow, and with an apical pair of small bristles. Metanotum black; halteres yellow. Abdomen yellow, hind margin of segments narrowly black. Legs yellow, tips of tarsi black. Wings hyaline, third section of costa one-half as long as second, third and fourth veins nearly parallel. Length 1.8 mm.

Four specimens. Tipton, Ga. October.

Oscinis ovalis n. sp.

Head yellow; vertical triangle deep, reaching nearly to the antennæ, containing a black ocellar dot; eyes pubescent. Mesonotum yellow, lateral margins and the narrow longitudinal vittæ brownish black; lateral vittæ black; pleura yellow, with an elongate, black spot above middle

coxæ; scutellum oval, yellow except basally, and with an apical pair of small bristles; halteres yellow; metanotum deep shining black. Abdomen brownish yellow, blackish basally. Legs yellow. Wings hyaline, second and third sections of costa of nearly equal length; third and fourth veins nearly parallel. Length 1.7 mm.

One specimen. Tipton, Ga. June. Close to *O. triangularis* Will., but is smaller, and the scutellum of entirely different shape.

Oscinis trisulcata n. sp.

Head yellow; occiput, upper part of vertical triangle, upper margin of third antennal joint, arista, and clypeus on each side, black. Mesonotum black, sides and humeri yellowish, with three longitudinal sulci; lateral bristles black; pleura obscure brownish black; scutellum concolorous, flat above, and with an apical pair of small bristles; halteres yellow. Abdomen brownish above, yellow beneath. Legs yellow; posterior femora with a blackish ring centrally. Wings hyaline; third section of costa about half as long as the second; third and fourth veins nearly parallel. Length 1.5 mm.

One specimen. Opelousas, La. March.

Observations on Papilio turnus var. glaucus.

By ERNST JEHEBER, Lancaster, Penna.

How fascinating is the first glance at a *Papilio glaucus* flying in nature, and it has often occurred to me that many collectors must have wondered what the cause may be for its dimorphism. Such has been my case, and I concluded to rear this species in the hope of being able to a degree to solve this problem. My first step was to carefully go over all the literature at my command which treated upon this subject, and from it I could only learn that yellow females sometimes produced black females, or that black females often produced yellow females; that the larvæ are either green, light to dark brown and blue-black. I now procured a number of eggs and larvæ of *turnus* and reared them on their favorite food plants—namely, wild cherry, tulip poplar and ash. The larvæ all progressed nicely until after the last moult, when I observed that a number of the larvæ after one or two days feeding showed signs of disease, in as much as they stopped feeding and I could plainly see that through their entire body they had a spasmodic jerking, which started at the head and went in a wavelike manner until it reached

the last segment. I separated these larvæ from the healthy ones, and upon the next morning I found most of them to have changed to a blue-black, some of them spotted and others very dark, and it could be plainly seen that the spots developed from within the larvæ. They did not feed again until the change of color was completed, which was generally on the third day. The pupation of these specimens was delayed just the number of days which it required for this color change. Every one of these larvæ developed into *glaucus* females, while the green and brown larvæ developed into the yellow form. My next object was to try find the reason. I succeeded in obtaining eggs of the second generation and again reared a large number of the larvæ with exactly the same result.

After those larvæ which changed their color as above had gone through their last moult I examined the foliage upon which they had fed, and I discovered that the leaves were sprinkled over with fine black spots and were completely covered over with a gummy substance. The nature of the phenomena I could not determine, but do not doubt that botanists can explain it. I now placed a number of green larvæ on this diseased foliage, and after one to two days feeding they changed their color, although not so intensely, the reason for which, in my judgment, is that they were too near pupation, these latter larvæ developed into specimens bearing a more or less large yellow spot in the centre of the anterior wings. To prove that my observations were well founded I reared a number of larvæ of the next generation on healthy foliage and a number on diseased foliage—I call it diseased as it turns yellow and withers much before the other—and the result was, healthy foliage, yellow females; spotted foliage, black females. In the pupæ I could not distinguish any differences upon which to base facts, but I am convinced that the dimorphism is a diseased condition, brought about by diseased food plants, and as far as I am able to judge at this time I believe the albino and melanic forms of other species, particularly of *Colias philodice*, will be ascribed to the same cause. But why only the one sex should become so affected is a problem which must be left for a scientist to solve.

Oviposition in Cordulegaster.

By Dr. F. Ris, Rheinau, Switzerland.

Prof. Needham's very pleasant narrative in the January number of Entomological News reminds me that I might give an account of an observation that seems not yet to have been recorded.

There is, very close to Zürich, almost within the limits of the city, a locality where, many years ago, I used to collect our two Swiss Cordulegasters, *bidentatus* and *annulatus*, the first always about ten days earlier than the other more widely diffused and less appreciated species. The place is a small open space in the woods, rather steeply inclined, the exposure nearly due North. Notwithstanding the inclination, the ground is swampy—we are in a region of beautiful and well preserved deposits of the great Ice Age—and a small spring of clear water runs down the slope, collecting at its foot in a shallow pond, thickly overgrown with various sedges, *Menyanthes trifoliata*, etc. This spring and pond are rich in Neuroptera; I mention *Adicella filicornis*, *Crunœcia irrorata*, *Beræa articularis*, *Beræodes minuta*, *Ptilocolepus granulatus*, *Oxyethira falcata*, amongst the less common Trichoptera, and they are the haunt of the Cordulegasters, the only one in the neighborhood of Zürich where I found them regularly and in numbers. The quality of the water is somewhat peculiar, not for this country, but more generally speaking; it is very rich in lime, as are all such springs in our rigion, where glacial deposits cover the rock of soft tertiary sandstone. Every branch of moss, every rootlet, every dead leaf, that hangs or falls into these waters is in a very short time covered by a soft deposit of soft, porous limestone. These deposits soon crumble and form in the rivulets a bottom of small, sharp-edged, angular debris, quite different from soft mud or polished gravel as they exist in our larger waters. I think this detail is not without importance in connection with the Cordulegasters.

Last summer I visited the *Cordulegaster*-spring again, after many year's interruption, on June 11th. The season was an unusually early one; I came just at the best of *C. bidentatus*,

which otherwise might have been a fortnight later. In a very short time I had captured a series of seven males and five females of *C. bidentatus*, but not a single *C. annulatus* was yet seen. But, still better, I had repeated an observation made seventeen years ago, only not recorded at that time, and which I did not like to record after such a long interval, unless having made it again.

All the five females were caught ovipositing, and their manner in doing so was peculiar. They took a very nearly vertical position, wings, abdomen and all, and flying in this position slowly onward, dipped the points of their abdomens vertically into the crumbled limestone deposit on the bottom of the very shallow water. It is evident, that the protruding, pointed and very hard ovipositor is wonderfully fit to protect the soft texture of the terminal segments against being injured by the sharp-edged debris. I could not observe, whether the eggs were laid singly or in clumps, not finding any eggs left in the ovipositors of my captives. The operation was otherwise easily observed during some length of time, before it was put an end to by a good stroke of the net. The large and bulky insect in its awkward vertical position made a curious impression of helplessness and was indeed very easily captured.*

I may here add that the black-and-yellow annular pattern, with the golden green eyes, seemed to me wonderfully adapted for hiding Cordulegasters settled on lively green shrubs in full sunlight. The males often settled, but had I not seen them alighting, it was found impossible to discover them again as long as they rested motionless. A hawking *Cordulegaster* seen right in front at your eye-level appears as a mixture of black, yellow and golden green that will be very nearly invisible on a background of sunlit meadow or shrub.

Still another observation on *Cordulegaster* perhaps merits a short mention. Years ago, in 1891, I caught a fine female of *C. bidentatus* near Alvaneu in the Grisons. It exhaled an

[*Two brief records of oviposition by *Cordulegaster* have been published in earlier volumes of the NEWS: by Miss Mattie Wadsworth, Vol. XIII, p. 247, October, 1902, and by P. P. Calvert, Vol. XV, p. 316, November, 1904.—EDS.]

extremely strong perfume of a quite agreeable character, having something of roses and of musk together. This perfume was much alike the one observed in *Cicindela* and, I think, other ant-eating insects. In our special case the odor was so strong, that it remained in my net for more than a year, and it lasted long even in the cyanide bottle. I have not observed the phenomenon again in the same species nor in any other dragonfly, and suppose the specimen had fed on ants, *Formica rufa* for instance being abundant in its region.

Lycaena emigdionis n. sp.

By Fordyce Grinnell, Jr., Palo Alto, Calif.

Female.—Expands 22 mm.—Upperside of primaries uniformly metallic brown, with a few bluish scales towards base of wings; a black discal dash; a marginal fine black line. Fringes long and white. Secondaries: same as primaries, but with five, submarginal, large, distinct, black spots surrounded by a brighter tinge of brown, the encircling brown rather broad inwardly. Underside of primaries uniformly grayish white; a large, black, distinct, reniform discal dash; next a series of seven, very distinct, large, cuneiform spots (the first circular), extending parallel to the outer margin. Next a series of six more, obscure, smaller dashes; next a series of four less well-defined dashes; a fine submarginal black line. Underside of secondaries uniformly grayish white; a rather obscure black discal streak surrounded by white; between this and base three small, distinct black dots extending from upper to inner margin, one in middle, one near upper and the other near inner margin. Between discal streak and outer margin a series of seven distinct black spots, the first six forming a >, the other a little outward and evidently consisting of two fused spots. Submarginally a series of seven black crescents, the lower five enclosing red dashes, next these red dashes are five metallic silver circles enclosing, each, a black dot; the first of the seven black crescents is small and in the apex, the next is more distinct and accompanied by a like one submarginally. A narrow, fine black marginal line. Fringes white. Body below grayish, with some long hairs. Palpi grayish, tipped with black. Antennæ annulated black and white; club black, above tipped with white.

Male.—Upperside of primaries violet-blue; with a broad, very dark margin, one-fourth inch in width, widest at costal margin, extending from costal to inner margin. A fine, black marginal line. Secondaries: violet blue, with a broad dark brown band extending from costa to inner margin; in anal angle are three black spots surrounded by a lighter brown. A marginal fine black line. Fringes long, white. The underside is almost exactly like that of the female, and in the other particulars they are the same.

Hab.—San Emigdio canon, Kern Co., Calif. Described from 2 ♂, 1 ♀, taken June 3 and 4, 1904, by the writer, and now in his collection.

This species seemed to be extremely local in San Emigdio canon, being found in only one place, and extending along the canon for about a hundred yards. It seemed to be not at all uncommon, and a good series of specimens was taken in the short time I was in this particular locality. They are very distinct, and the first one I saw I recognized to be something new to me. The color of the upperside of the male and female, and heavy markings and metallic scales of underside and a partial obliteration of the marginal red band on the upperside of secondaries are very distinctive characters. It belongs to the *acmon* group.

A New Culex From Australia.

By D. W. Coquillett.

Culex labeculosus new species.

A rather large brown form with white bands at bases of the segments of the abdomen and tarsi. Proboscis nearly covered with white scales, those on upper half of occiput golden brown, on the remainder white. Mesonotum golden brown scaled and with several brassy yellow ones interspersed, some of which form a pair of indistinct subdorsal light colored lines, the scales very narrow; bristles black, those on the scutellum chiefly yellow. Scales of abdomen black, a broad crossband of white ones at base of each segment and several white scales scattered over the sixth and seventh segments. Scales of femora, tibiæ and first tarsal joint mixed black and white, not forming distinct bands or spots, those on the posterior side chiefly white, on remainder of tarsi black and with a band of white ones at base of each joint, that at base of the second joint of the hind tarsi covering nearly one-third of the joint; front tarsal claws of female unidentate. Wings hyaline, the scales brown, the lateral ones narrow and nearly linear, petiole of second submarginal cell nearly half as long as that cell. Palpi of female chiefly black scaled except at the apex, where the scales are white; palpi of male narrow, blackish and with two white bands. Length 4 to 5 mm.

Six females and two males, labelled as having been collected on Goode Island, Victoria, Australia. Received by Dr. L. O. Howard from Mr. C. French, the government entomologist of Victoria.

Type No. 8314, U. S. National Museum.

Some Notes on the Habits and Life History of Bembecia marginata Harris in Western Washington.

By W. H. Lawrence, Agricultural College, Washington.

The so-called Raspberry Root Borer or Blackberry Crown Borer, *Bembecia marginata* Harris, has found its way into some of the berry fields in Western Washington. The habits and life history vary somewhat from those described in other sections. Scattering observations made during 1901 to 1904, show that it takes a period of two years for the transformation of the insect. It has been particularly easy to trace the transformations, as but a single brood occurs in this section.

During 1903 adults reared from pupæ and adults captured in the field were confined in cages and in a large glass jar. In the latter, raspberry slips were placed in a dish of water. Numerous eggs were deposited in these cages. The females endeavored to place each egg beneath the object upon which they were resting; many were placed on the under surface of the leaves in the jar.

In the field the moths alight on the upper surface of blackberry or raspberry leaves. When ready to deposit their eggs they begin to flutter their wings, rise on "tip-toe," move sidewise, bend the abdomen around the edge of the leaf and deposit a single egg beneath. During the season not a single egg was found on the canes at any point high or low—all were on the lower surfaces of the leaves.

The eggs are oval, of a deep reddish brown color, and about $\frac{1}{16}$ of an inch long. A single moth lays about 140; those confined in cages laid from 135 to 150. A large number of eggs were kept on dry earth in the bottom of a breeding cage; others were kept on the wooden floor of a cage. Leaves collected in the field, on which eggs had been deposited, were also placed in these cages. Canes, on the leaves of which eggs had been deposited, were placed in water in jars, and kept alive as long as possible. The location of each of a large number of eggs on leaves in the field was marked. Not an egg on wood, dry earth, or dry leaves in the field, hatched. A

considerable number of those on the leaves of canes kept in water hatched, as did a greater number in the field. These experiments indicate that the eggs need a certain amount of moisture in order to develop properly. They hatched during the third week in September. A large number of those in the field hatched on the 19th to 21st of September.

When the egg is ready to hatch the larva makes a small, round hole in one end of the shell and crawls out. At this stage the larvæ are about $\frac{1}{16}$ of an inch long, nearly white, and clothed with a few colorless hairs; the head is dark brown. The larvæ in the field soon disappeared. Late in December, 1903, an effort was made to locate them; plants were dug up and the canes and roots split open, but not a single larva could be found. A number of young plants were selected on the leaves of which, in autumn, numerous eggs had hatched; these were taken up and carefully washed, preparatory to splitting them. A number of small, blister-like elevations were noticed on the bases of these canes, on the part below the surface of the ground. On opening these spots, each of them contained a single larva. The larva had crawled down the stem, eaten a hole through the epidermis, formed a round cavity in the bark just large enough to contain it, curled up, and become inactive. Other plants were examined. The larvæ had not only buried themselves in the bark of the canes, but in many instances were found several inches below the surface of the ground, under small scales on the roots, just beneath laterals, and in crevices of the roots. Many were found in these winter quarters. At this time of the year the larvæ are very small, having increased about one-third in length.

On December 29, 1904, the writer dug up about 15 hills of blackberry canes, washed the roots, and searched for larvæ. Four were found in winter quarters just beneath the epidermis. This observation further substantiates the one made the previous year and also shows that a second brood is just beginning to appear.

The writer has not had an opportunity to study the habits of the larvæ after they begin active feeding in the spring. Those that hibernate in the bark of the cane during the winter un-

doubtedly leave their quarters and crawl down from the outside of the stem. No evidence has been found to show that they enter the canes and tunnel down into the roots. Small holes have been found in the roots, showing that some of the larvæ at least enter directly into the roots.

During the following season the larvæ begin active feeding, and are about one-half to three-fourths of an inch in length by the time they are one year old. The body becomes much stouter. They remain at rest in the tunnels in the roots during the second winter and begin active feeding the following spring. At this time they are usually in the root, just beneath the crown; they usually take an upward course, enter and eat out the pith of the cane for a distance of one to five inches; then tunnel obliquely through the wood and bark, leaving only the epidermis intact. Having done this, the larvæ may go down the hole some distance, but when ready to pupate they return to some part of the tunnel in the cane before transformation. When ready to pupate the larvæ become somewhat shorter and darker in color. By the middle of June a few pupæ were found; by the middle of August all were in the pupal state, and some had emerged as adults. The adults continued to emerge until late in September.

When the adult is ready to emerge it crawls out of the pupa-case leaving it sticking in the hole made by the larva in the side of the cane. One pupa was taken in the act of cutting out the epidermis; this pupa was placed upon a piece of paper on a table in the laboratory. At the end of two hours the adult had emerged and was drying its wings. After emergence, the adults may be found resting on the leaves of raspberry and blackberry plants or flying about the fields depositing their eggs.

Up to the present time infested plants in this State have seldom shown any signs of the presence of the borers other than a poor growth. On one occasion a single hill of blackberry canes wilted about the time the leaves were well out. The roots were well filled with tunnels. Seven larvæ, each about an inch long, were collected. Other hills examined gave one to four borers, but none of them showed external signs of their presence. On a few occasions single canes in hills of blackberries died. In nearly every case a borer had eaten out the pith of the cane at the crown. In this section the borer never girdles the cane. There is never a morbid enlargement of the canes. In fact many times the borers never enter the canes, but remain in the roots until ready to emerge as adults. Pupa-cases were found sticking in the sides of exposed roots. In a single instance one borer was found in an exposed lateral root 18 inches from the base of the cane.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., APRIL, 1905.

We are frequently in receipt of letters from collectors and beginners lamenting the constant changes in the names of insects, principally generic, and we desire to say a few words to them that may be of interest. They appear to be laboring under the impression that they are obligated to turn their collections inside out every time a new list appears but every such idea is entirely erroneous. The species is the unit of classification and if one knows the specific name the rest is attainable. Why should the beginner worry his brains about the never-ending wrangle about nomenclature?

It is bad enough for the systematist to run the risk of getting megalocephalitis over it. Don't change your collection unless it is overcrowded and needs rearranging or you have some good reason for so doing, and even then don't change the names unless it is your desire to do so. If a new list comes out and you don't wish to follow it, wait for the next one which may be more in conformity with your own ideas. In a formative study like entomology changes in nomenclature are inevitable, but that is no reason for people being on pins and needles and making changes every five minutes. It will be not less than a thousand years before the question of nomenclature will be finally settled, as it will take that long to describe all the species of insects in the world; therefore why worry about it?

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

CHANGE OF ADDRESS.—After this date correspondents will kindly address all mail matter, packages, etc., to my residence, *Montclair, N. J.* —W. D. KEARFOTT.

PROF. O. W. BARRETT has for the present left Mayaguez, Porto Rico, and is at Clarendon, Vermont.

A fly and a flea in a flue
Were imprisoned. Now what could they do?
Said the fly: "Let us flee!"
"Let us fly," said the flea—
So they flew, through a flaw in the flue.

—Puck.

DESMIA FUNERALIS Hübner, and variety *subdivisalis* Grote.—With reference to above species and variety, I have examined a large number of specimens in all the collections to which I have had access, and I find that so far as I have examined all the *funeralis* specimens are males, and all the *subdivisalis* specimens are females; if this is correct, which I have no reason to doubt, then *subdivisalis* will have to drop out as a variety and simply become a synonym. Shall be pleased to be corrected in this if I am in error.—FRANK HAIMBACH.

Doings of Societies.

Readers of ENTOMOLOGICAL NEWS will probably be interested to know that small as is the Territory of Hawaii, it maintains three staffs of official entomologists. The oldest of these, in reference to years of existence, is the Entomological Division of the Board of Commissioners of Agriculture and Forestry, dating from the fall of 1893, when Mr. Albert Koebele, of *Vedalia cardinalis* fame, was engaged to carry on this work. Besides Mr. Koebele, the work of this office is now attended to by Messrs. Alexander Craw, Jacob Kotinsky and C. J. Austin. Next in order comes the U. S. Experiment Station of Hawaii with Mr. D. L. Van Dine as its official entomologist; and last in order of organization, but first in the number of entomologists it employs, is the Entomological Department of the Hawaiian Sugar Planters Experiment Station. Besides the

partial services of Messrs. Craw and Koebele, it employs Messrs. R. C. L. Perkins, G. W. Kirkaldy, F. W. Terry, O H. Swezey and Mrs. O. H. Swezey, entomologists' artist. All these offices are located in the outskirts of the city of Honolulu, on the Island of Oahu, almost within shouting distance of each other.

In the order given above, the first office devotes its attention principally to inspection work for the exclusion of undesirable pests, and the introduction of beneficial insects. Mr. Van Dine in the second office carries on work of general Economic Entomology as it is practiced in the States. The third office, superintended by Mr. Perkins, devotes its attention to entomological problems in sugar cane fields solely. Needless to say that much creditable work is accomplished by each of the stations, and, entomologically at least, Hawaii is well safeguarded. For this entomologicai activity, much credit is due to a very energetic member of the Territory Board of Commissioners, Mr. W. M. Giffard, himself an enthusiastic insect collector of no mean proportions.

This small but enthusiastic band of entomological workers together with others interested, met on January 26th last and organized The Hawiian Entomological Society. A constitution was adopted, and the following officers chosen: President, Mr. R. C. L. Perkins; Vice-President, Mr. Alexander Craw; Secretary–Treasurer, Mr. Jacob Kotinsky. Mr. Albert Koebele was elected first honorary member in consideration of his valuable entomological services to this Territory.

The second regular meeting of the Society was held in the Library of the Board of Agriculture and Forestry on February 9, 1905; eight members present, Mr. Perkins in the chair. The secretary read a communication from Mr. Kirkaldy who is convalescing at the local hospital after an operation, the result of a serious accident last spring. Brother Matthias Newell, of Hilo, was elected honorary member. Mr. Kotinsky read the prepared portion of his paper on the "History of Economic Entomology in Hawaii." This paper was thoroughly discussed by all present, and many points of local interest were brought out in course of this discussion. Mr. Per-

kins stated that *Sphenophorus obscurus*, which occurs in papias, cocoanuts and Royal palms, besides sugar cane, was known upon these Islands in 1865, and might have been introduced many years previously. He also stated that *Neda abdominalis* was affected by the Braconid parasite (*Centistes americana* Riley,) which is so destructive to *Coccinella repanda*, before the latter was brought by Koebele.

The next paper was "Entomological and Other Notes on a Trip to Australia," by R. C. L. Perkins. In this Mr. Perkins recounted his and Mr. Koebele's experiences during their last entomological expedition to Australia in search of a parasite of the sugar cane leaf-hopper (*Perkinsiella saccharicida.*) These notes comprised observations on many insects, birds and forests. Mr. Giffard exhibited specimens of *Chalcolepidius erythroloma*, 44 of which were collected during Sundays of a couple of months from one Koa tree in a row of about eight or nine lining the road to Mt. Tantalus. Mr. Terry exhibited a living pair of *Neda testudinaria* which came here from Australia on December 13th. The female began to lay eggs on the 15th, and has since deposited 32 batches comprising 897 eggs. She apparently is still capable of laying a good many more.

At 10 p. m. the Society adjourned.

JACOB KOTINSKY, *Secretary-Treasurer.*

A stated meeting of the Feldman Collecting Social was held February 15, 1905, at the residence of Mr. H. W. Wenzel, No. 1523 South Thirteenth Street, Philadelphia. Twelve members were present.

The death of Professor A. S. Packard, of Brown University, of Providence, R. I., was announced, as was also the death of Dr. Prime, of New York City. Dr. Prime was a brother of Mrs. Slosson; he took a great deal of interest in entomology and was identified with a number of scientific and other soceties.

A letter was read from Dr. Philip P. Calvert, accepting his election to honorary membership.

Mr. H. W. Wenzel exhibited pieces of wood showing the work of Scolytidæ, and one piece showing the work of *Am-*

brosia beetles in swamp maple; the species is *Xyleborus pubescens* of which the females are wingless. Mr. Wenzel remarked that when the imago enters it leaves a stain which renders the wood useless for the cabinet-maker. The males of this species are predominant. Another species which was quoted is *Hypothenemus dissimilis*, found in terminal twigs of oak, where they pupate in the pith near the terminus of twigs, lying as peas in a pod. In the same galleries were found the parasites on the above species belonging to the family Proctotrypidæ.

Mr. Wenzel further remarked that on February 13th he took a number of specimens of *Hylesinus aculeatus* under the green bark of ash in Philadelphia.

Mr. Harbeck spoke of taking a number of interesting small species of Diptera by sieving.

Mr. Daecke spoke of characters in the classification of aerial and pedestrian Diptera, and of color and stripes as being only a matter pertaining to the internal structure.

FRANK HAIMBACH, *Secretary*.

Meeting of the Entomological Section, Chicago Academy of Sciences, held January 19, 1905, at the John Crerar Library. Eight members present. Minutes of the November meeting were read and approved. No meeting was held in December as no quorum was present.

The report of the Honorary Curator was read by the Recorder. It included a list of acquisitions to the Entomological Collection during 1904, the totals being as follows:

Lepidoptera	64
Coleoptera	1324
Hemiptera	255
Orthoptera	24
Neuroptera	15
Diptera	282
Hymenoptera	138
Myriopoda	1
Total	2103

The election of officers resulted as follows: Chairman, W. E. Longley; Recorder, Alexander Kwiat; Honorary Curator,

A. B. Wolcott; Executive Committee, John L. Healy Wm. J. Gerhard and A. Kwiat.

Chairman W. E. Longley then read his report of the past year's work of the Entomological Section and its members. This consisted largely of a list of the rarer insects captured in the so-called Chicago area. They were:

COLEOPTERA.

Cychrus lecontei *Dej.* Two specimens ♂ and ♀ were taken within 100 feet of each other in early spring in deep damp timber at Bowmanville.

Leptinus testaceus *Mull.* One specimen of this rare blind beetle was taken from a mouse nest at Clarke, Indiana.

Coccinella transversoguttata *Fab.* This is a rare northern species and only one specimen was taken, on the beach of Lake Michigan.

Sphæridium scarabæoides *Linn.* Quite a few specimens were taken near Lake Michigan on October 9th. Heretofore not reported farther west than Pennsylvania. It is found in Europe.

Clerus quadrisignatus *Say.* One example of this southern species was taken at River Forest on dead hickory.

Mezium americanum. One specimen taken by Mr. Kwiat at Edgebrook. It is cosmopolitan but apparently very rare on this continent. Its peculiar appearance may account for this scarcity as it greatly resembles a small red Arachnid.

Lema cornuta and Lema collaris. Taken at Clarke, Indiana.

Chrysomela auripennis. At Hessville, Indiana.

Phyllotreta armoracinæ *Koch.* Two specimens taken on the Lake beach June 2nd. This European insect is supposed to have gained a foothold in this country during the Columbian Exposition. It has been reported from Iowa, and Mr. Wolcott took a single specimen at Bloomington, Illinois, several years ago.

Physonota unipunctata *Say.* One specimen was taken at Hessville, Indiana, in early spring. It is a strikingly beautiful species and evidently very rare as it is seldom mentioned in Coleopterous literature.

Zonitas atripennis *Say.* Is commonly found on the great plains. One specimen was taken by Mr. Kwiat at Hessville, Indiana.

Mr. Liljeblad reported the following:

Cincindela purpurea, from Highland Park on the North shore.

" lecontei, from Fort Sheridan also on the North shore.

Lebia bivittata, from Fort Sheridan.

Notoxus serratus, from North Evanston on the North shore.

Acmæops bivittata and numerous color varieties from Fort Sheridan.

" nigripennis, from Fort Sheridan and Glen Ellyn, which lies almost twenty miles west of the lake.

Byrrhus americana, from Fort Sheridan

Cytilus sericeus, from Fort Sheridan.

Oberea bimaculata, from Fort Sheridan.

Zonitas bilineata, from Palos Park, which lies twenty miles southwest.

Mycotretus sanguinipennis, Palos Park.

Ceratoma caminea, from Palos Park.

Phymaphora pulchella *Newm.*, from Highland Park.

Mr. Wolcott reported the capture of: Carabus meander *Fisch.*; Omophron nitidum *Lec.*; Omophron americanum *Dej.*; Badister pulchellus *Lec.*; Chalænius niger *Rand.*; Chalænius purpuricollis *Rand.*; Oodes fluvialis *Lec.*; Agathidium oniscoides *Beauv.*; Lomechusa cava *Lec.*, host the black carpenter ant; Cucujus clavipes *Fab.*; Languria gracilis *Newm.*; Hololepta fossularis *Say.*; Dicerca asperata *Lap.* and *Gory.*; Agrilus acutipennis *Mann.*; Calopteron terminale *Say*; Odontæus filicornis *Say*; Mecynotarsus candidus *Lec.*, found on white lake sands; Cryptocephalus guttulatus *Oliv.*; Blapstinus interruptus *Say*; Eurymycter fasciatus *Oliv.*; Odonota hornii *Smith*, an intermediate form between this species and dorsalis.

Mr. Liljeblad also reported the following Coleoptera from McGregor, Iowa, at which place he attended the field meeting of the Academy of Sciences: Pyrochroa flabellata, Cistela variabilis, Cupes concolor, Penthe pimelia, Lucanus dama, a diminutive specimen only ⅞ of an inch long.

HYMENOPTERA.

Mr Gerhard reported the capture of a male *Pelecinus polyturator*. This is considered quite a rarity.

LEPIDOPTERA.

Terias mexicana. A southern butterfly; was reported from Chicago, Hessville and Lake Geneva, Wis.

Lycæna lygdamus. A number of fresh specimens from Palos Park, early in May, by Messrs. Kwiat and Liljeblad.

Lycæna scudderi. Only one specimen, at Hessville.

Amblyscirtes samoset. One specimen taken by Mr. Liljeblad.

Crocota læta. Several specimens taken at Edgebrook, Hessville and Palos Park.

Arctia vittata. Taken at Palos Park.

Charadra deridens. Two taken at light by Mr. Beer.

Acronycta lithospila. One taken at light by Mr. Beer.

Polygrammate hebraicum. Two or three taken at Hessville.

Leptina doubledayii. One specimen taken at Hessville, by Mr. Kwiat.

Ulolonche modesta. Several from Hessville and Clarke, Ind.

Hydrœcia purpurifascia. Quite a number were taken at Hessville.

" rutila. Taken at light by Mr. Beer.

" marginidens. Taken at light by Mr. Beer.

" limpida. Two taken at light by Mr. Beer.

Hypocala hillii. Several were taken at lights in various parts of the city late in the fall.

Anchocelis digitalis. Several taken at light by Mr. Beer.

Schinia tertia. One specimen taken at light by Mr. Krueger.

Plusia selecta and Plusia ampla. Were taken at light by Mr. Krueger.

Euherrichia mollissima. Several were taken at Hessville.

Latebraria amphipyroides. One specimen of this large southern moth was taken at sugar at Edgebrook, by Mr. Vollbrecht.

Thysania zenobia. A very good specimen was taken in a residence portion of the city.

Nerice bidentata. Was taken at Edgebrook.

Pheosia dimidiata and Lophopteryx elegans. Were taken at Hessville.

Geometridæ reported were:

Acidalia purata. From Hessville.

Aspilates coloraria. From Hessville and Palos Park.

" liberaria. From Hessville and Fort Hamilton.

Endropia madusaria. From Clarke and Hessville.

" marginaria. " " " Palos Park.

" obtusaria. " " " Edgebrook.

Plagodis serinaria. From Palos Park

Eubyia quernaria. From Palos Park and from Edgebrook.

Lozogramma detersata. From Hessville

Eois demissaria. From Hessville.

Cinglis purata. From Hessville.

Cochlidion rectilinea and Kronea minuata. Were reported as new, from Hessville.

Cossus centerensis. Was taken at Hessville and Clarke, Ind.

Prionoxystus macmurtrei. Was taken at Palos Park and at Edgebrook.

Of Micro-Lepidoptera a large number were taken, many of them new to local collections. Most of them are unfortunately undetermined, but the following are deserving of mention.

Scirpophaga perstrialis. Two specimens at Hessville.

Titanio helianthialis. A number of specimens at Hessville.

Perispasta cæculalis. Two at Palos Park.

Cindaphia bicoloralis, Galasa rubidana, Schœnobius tripunctellus, Pseudoschœnobius opalescalis, Eucosma giganteana, Archips semiferana, Archips fervidana.

Mr. Kwiat reported the successful breeding of *Crocota brevicornis* through two broods, securing quite a number of specimens showing considerable variation. He bred two males of *Crocota opella* from eggs which were sent him by Mr. Henry McElhose from St. Louis. Also *Arctia vittata* through two broods securing fairly constant forms. He expects to continue his study in these genera.

Most of the above species, both Coleoptera and Lepidoptera, were exhibited at the meeting by Messrs. Wolcott, Liljeblad,

Longley and Kwiat. The greater part of the Lepidoptera mentioned had not been reported from the Chicago area heretofore, which is the more surprising, as the concensus of opinion was that the season had been a very poor one. No records of Coleoptera or the other orders have been kept.

ALEXANDER KWIAT, *Recorder.*

A meeting of the Entomological Section of the Chicago Academy of Sciences was held February 16, 1905, at the John Crerar Library. Ten members present.

The topic for the evening was a discussion of "Variation in Tiger Beetles" by Mr. V. E. Shelford of the University of Chicago. Mr. Shelford has been studying these beetles for several years and has succeeded in gathering a large number of species and specimens from all parts of the world, paying more particular attention, of course, to Boreal American forms. Referring to taxonomic characters he found that color and color patterns, which have heretofore been used by prominent entomologists, are of little value, owing to the great amount of variation. The distinction between "thorax marginate" and "thorax not marginate" is also of little value as even this feature is variable. In his opinion, pilosity and the sculpture of the thorax are the best characters to work upon, and herein he is supported by Dr. Horn, of Berlin, who is using pilosity almost entirely in his forthcoming work on the group.

Mr. Shelford exhibited a chart showing various types of maculation and a number of the beetles, which showed the variations existing among the species. These variations were often geographical, but it seems that in many cases, almost all the different forms of a species could be taken in one locality while elsewhere only one or perhaps two forms were to be had.

There was some discussion among the members on this subject and also about a specimen of *Arctia virgo* exhibited by Mr. Beer which had yellow instead of red secondaries and abdomen.

Mr. Shelford was given a vote of thanks, whereupon the meeting adjourned.

A. KWIAT, *Recorder.*

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted.—North American Lepidoptera, especially Catocalas and Sphingidæ, also exotic Papilios. Will pay cash or give good exchange. Herman J. Erb, 536 Plum Place, Union Hill, N. J.

Catocala and Moths of Pennsylvania. The undersigned will give good exchange in cash or specimens for the following Catocala: *Catocala olivia, sancta, dulciola, mira, frederici, amestris, rosalinda, hermia, elda, dejecta,* and *luctuosa,* or for any moths of Pennsylvania that are new to my collection. Philip Laurent, 31 East Mt. Airy Avenue, Philadelphia, Pa.

Bred specimens of *Paphia troglodyta* and other diurnals in papers, also cocoons of bombycids and pupæ of sphinges for exchange. Wish *sphinges.* R. R. Rowley, Louisiana, Mo.

Lepidoptera: I have some good Noctuidæ in exchange for desirable North American Heterocera. *Xylina, Calocampa* and *Plusiidæ* especially desired. Henry Engel, Box 35, Oak Station P. O., Allegheny Co., Pennsylvania.

Lepidoptera to exchange for specimens new to my collection. Chas. Krueger, 1162 N. Lincoln Street, Chicago, Ill.

Promethea Cocoons to exchange for Lepidoptera or other cocoons. D. M. Fuller, 221 Lancaster St., Albany, N. Y.

Coleoptera.—*Ptinus fur, P. brunneus* and *Lomechusa cava* to exchange for Cicindelidæ. G. R. Pilate, 43 Wrae St., Dayton, Ohio.

Wanted.—North American Bibionidæ for study. Will name and return material sent, for the sake of learning the distribution. W. A. Hooker, care of Dr. H. T. Fernald, Mass. Agl. College, Amherst, Mass.

Exchange.—B. C. Lepidoptera in exchange for high grade guitar, typewriter, 3 A F. P. kodak, 4 B alvista or 5x7 Seneca No. 9 camera or like. Send description and conditions. Theo. Bryant, Wellington, B. C. Can.

Wanted.—Lycænidæ from North America and Europe, and early stages especially. Complete data required. Californian Lepidoptera given in exchange.—Fordyce Grinnell, Jr., Palo Alto, California.

Wanted.—Riley's 3rd, 4th and 6th Missouri Reports. Will pay cash for same.—Wilmon Newell, Box 583, Shreveport, La.

Offers Wanted.—U. S. A. Coleoptera, Mantidæ, Phasmidæ and Orthoptera by Entomological student.—W. T. Page, 6 Rylett Crescent, Shepherds' Bush, London W., England.

Lepidoptera.—For exchange perfect specimens of *Pamphila aaronii, Satyrus alope* var *maritima, Pamphila panoquin, P. otho, egeremet, Yponomeuta multipunctella.* Send offers to Frank Haimbach, 1309 Allegheny Avenue, Philadelphia, Penna.

I have 400 *Promethea* (300 *Cynthia,* 100 *Cecropia*) and a few *Polyphemus* cocoons to exchange for other common N. A. pupæ or *Lepidoptera* in papers.—John H. West, 5335 E. Letterly St., Philadelphia, Pa.

Wanted in quantities, for cash or exchange, perfect specimens of common species of Lepidoptera, Coleoptera, Hymenoptera, Diptera and Hemiptera.—The Knv-Scheerer Co., Department of Natural Science, 255 Fourth Ave., N. Y. City.

Coleoptera.—I desire to exchange for good N. A. beetles especially from the southern states.—H. F. Wickham, Iowa City, Iowa.

Wanted.—*Lycænas* and *Theclas* not in my collection, either for cash or good exchange. Send list.—H. H. Brehme, 583 18th Ave., Newark N. J.

Wanted.—Uhler's Papers on Hemiptera. Will give cash in exchange or insects, or any other papers. Will also name aquatic Hemiptera for privilege of examination. Write before sending.—J. R. de la Torre Bueno, 25 Broad St., New Xork City.

Lepidoptera.—Cocoons of North American *Limacodidæ* wanted. Will give *luna* cocoons in exchange.—John A. Grossbeck, 25 Totowa Ave., Paterson, N. J.

North American Lepidoptera wanted in exchange for others. Have hundreds of specimens to exchange.—Send list to Jos. H. Reading, 775 N. Rockwell St., Chicago.

Will contract to collect any order or group of insects this season for private collections, museums, colleges or any public institution. Duplicates for sale of all orders from Colorado, Arizona and New Mexico.—Ernest J. Oslar, Alcott P. O., Denver, Colorado.

I will make drawings in black and colors, in exchange for perfect Lepidoptera, not found in this locality.—W. Wild, 426 Baynes Street, Buffalo, New York.

Eastern Mass. moths wanted in exchange for same; also perfect colored sketches of larvæ of same.—C. V. Blackburn, 101 Pine Street, Woburn, Mass.

Wanted.—Fertile ova of *Argynnis diana.*—Robert A. Kemp, Frederick, Md.

Wanted.—In all parts of North America correspondents who will collect *Cicindela* and *Chrysomela* for named Coleoptera and Lepidoptera of North, Central and South America, Europe and Australia.—Address Room 23, Zool. Building, University of Chicago, Chicago, Ill.

Psyche.—Copies of the February Number, 1904 (Vol. XI, No. 1), wanted. Cash or exchange given.—H. H. Newcomb, 43 Tremont Street, Boston, Mass.

Coleoptera.—I wish to buy North and Central American beetles.—Fred. C. Bowditch, 164 Rawson Road, Brookline, Mass.

Wanted in exchange for beautiful exotic and native butterflies, a live Japanese Nightingale or other brilliant colored birds.—Chas. F. Timm, 1255 Greene Avenue, Brooklyn, N. Y.

Exchange —Perfect fertile ova of *C. colleta*, *A. luna* and *E. imperialis*, which I would like to exchange for fertile ova of other species.—Alfred C. Sampson, Sharon, Mass.

Have a number of books and pamphlets on Lepidoptera, also a zither to exchange for books not in my library, or for moths, geometers or micros.—Wm H. Broadwell, 275 High Street, Newark, N. J.

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